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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,420	01/10/2002	Kathrin Berkner	74451.P138	1066

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EXAMINER
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HUNG, YUBIN

ART UNIT	PAPER NUMBER
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2624

DATE MAILED: 08/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/044,420

Applicant(s)

BERKNER ET AL.

Examiner

Yubin Hung

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-9, 37-53 and 92-106 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 92-106 is/are allowed.
- 6) ☒ Claim(s) 1-9 and 37-53 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

JINGGE WU  
PRIMARY EXAMINER

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/18/06.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Response to Amendment/Arguments***

1. This action is in response to the amendment filed July 25, 2006.
2. Claims 1-9, 37-53 and 92-106 are still pending.
3. Applicant's amendment to the specification has introduced new issues. See below.

***Specification***

4. The disclosure with replacement paragraph 59 is objected to because of the following informalities:
  - Line 4 of replacement paragraph 59: since the image has a size of  $M \times N$  and each block has a size of  $m \times n$ , regardless of the number of levels used (three in Fig. 1; see also paragraph 37 of the specification), the number of blocks (over the entire image) should be  $(M/m) \times (N/n)$ . Therefore the number of possible labelings should be  $J^{(M/m) \times (N/n)}$ , not  $J^{M \times N}$ .

Appropriate correction is required.

5. Applicant's arguments filed 07/25/06 have been fully considered but they are not persuasive; see below.

**6. In remarks Applicant argued in substance:**

6.1 *that Queiroz in combination with JPEG 2000 does not teach generating a granular multi-scale entropy distribution using multi-scale information obtained from the header of a compressed bitstream or applying one or more image processing operations based on the granular multi-scale entropy distribution (P. 13, 3<sup>rd</sup> paragraph, lines 10-13); and that Queiroz performs image processing based on information (i.e., ECM map) about an image (P. 12, 1<sup>st</sup> paragraph, last two lines) and would not be applied on multi-scale information (P. 14, 1<sup>st</sup> paragraph, lines 6 through the end)*

However, the ECM map of Queiroz is a generated entropy distribution of a compressed image, since each ECM represents *the number of bits for an encoded block* [Queiroz, Sect. 2, lines 2-3] and the image processing operation (segmentation) is carried out using this distribution [Queiroz, Sect. 2, lines 1-2; see also paragraph 37 on page 12 and Table 1 on page 14 of the original specification regarding entropy]. While an ECM map is not multi-scale, Table 1 of the specification (admitted prior art) discloses that entropy information for each sub-band is available in the header of a JPEG 2000 compressed bitstream, the entropy information for each sub-band corresponds to an ECM map. Therefore a

multi-scale entropy distribution (in the form of a collection of ECM maps, one for each sub-band) is readily available and each ECM map can be used to segment the version of the image corresponding to sub-band the ECM represents [note that each sub-band corresponds to a version of the original image (e.g., at different resolution)]. In other words, Queiroz's image processing operation (i.e., segmentation) is applicable on multi-scale information.

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(From Office action mailed 04/21/06)

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 3, 4, 6, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Queiroz et al. ("Fast Segmentation of the JPEG Compressed Documents," *Journal of Electronic Imaging*, Vol. 7(2), April 1998, pp. 367-377, submitted as part of the IDS), further in view of APA1 (admitted prior art, see Table 1 on page 14 of the specification).

9. Regarding claim 1, and similarly claims 4 and 7, Queiroz discloses

- generating a granular multi-scale entropy distribution; and applying one or more image processing operations based on the granular multi-scale entropy distribution  
[P. 370, Sect. 3, 1<sup>st</sup> and 2<sup>nd</sup> paragraphs; P. 371, Sect. 4, 1<sup>st</sup> paragraph]

Queiroz does not expressly disclose that the entropy distribution is generated using multi-scale information obtained from a header of a compressed bit stream.

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However, APA1 discloses that the required granular entropy distribution (e.g., the length of coded data) is readily available in the header of a JPEG 2000-compressed bit stream.

Queiroz and APA1 are combinable because they are from the same field of endeavor of image compression/decompression.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Queiroz with the teachings of APA1 by extracting granular entropy distribution from the header of a compressed bit stream. The motivation would have been to lower the computation cost, since the information is readily available.

Therefore, it would have been obvious to combine APA1 with Queiroz to obtain the invention of claim 1.

10. Regarding claim 3, and similarly claims 6 and 9, further note that the image processing operation disclosed in Queiroz (per the analysis for claim 1) is segmentation and segmentation resulted in the labeling of different regions. (See also Queiroz, Sects. 4.1 through 4.1.4 of pp. 372-373, where clearly the result of the segmentation is the classification of image portions into background, text and graphics, etc.) Moreover, only information from the header is needed.

11. Claims 2, 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Queiroz et al. ("Fast Segmentation of the JPEG Compressed Documents," *Journal of Electronic Imaging*, Vol. 7(2), April 1998, pp. 367-377) and APA1 (admitted prior art, see Table 1 on page 14 of the specification) as applied to claims 1, 3, 4, 6, 7 and 9 above, and further in view of Jändel et al. (WO 00/01153, submitted as part of the IDS).

12. Regarding claim 2, and similarly claims 5 and 8, the combined invention of Queiroz and APA1 discloses all limitations of its parent, claim 1.

The combined invention of Queiroz and APA1 does not expressly disclose

- decoding only a portion of coded data in the compressed bit stream as part of applying the one or more image processing operations

However, Jändel discloses decoding only portions of coded data (regions of interest, the regions being the result of segmentation). [See the abstract, especially the last three lines.]

The combined invention of Queiroz and APA1 and Jändel are combinable because they both have aspects that are from the same field of endeavor of Compression/decompression.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the combined invention of Queiroz and APA1 with the teachings of Jändel by



decoding only a portion of the coded data. The motivation would, again, have been to lower the computation cost, since no computation resource need to be spent on the portions of data that are not of interest.

Therefore, it would have been obvious to combine Jändel with Queiroz and APA1 to obtain the invention of claim 2.

13. Claims 37-44, and similarly claims 45-53, are similarly rejected as per the analysis of claim 2 above:

- Claim 37. receiving multi-scale header information corresponding to a bit stream of multi-scale transform-based compressed data representing image data;  
generating a feature vector corresponding to image description bits in the bit stream from the header information; and  
performing one or more operations on at least a portion of the bit stream based on the feature vector  
[Per the analysis of claim 2. Note that the segmentation masks (e.g., Figs. 12-14 of Queiroz) obtained using the ECM (see the first paragraph of section 3 of Queiroz) are considered a feature vector. Note further that JPEG 2000 is a multi-scale, transform-based compression scheme]
- Claim 38. the method defined in Claim 37 further comprising generating a distribution of the number of zero bit planes in one or more portions of compressed data, the distribution derived from the heading information  
[Note that APA1 further discloses that the JPEG 2000 header contains the number of zero bit planes]
- Claim 39. the method defined in Claim 37 further comprising generating an entropy distribution based on the header information  
[Per the analysis of claim 2]
- Claim 40. the method defined in Claim 39 wherein the entropy distribution is granular  
[Note that per APA1, since the entropy information is for a code block, it is granular]
- Claim 41. the method defined in Claim 39 wherein the entropy distribution comprises a map of bit distribution for the image data  
[Note that the ECM (see the first paragraph of section 3 of Queiroz) is a map of bit distribution]
- Claim 42. the method defined in Claim 39 wherein the entropy distribution is a length of coded data for code blocks  
[Per APA1]
- Claim 43. the method defined in Claim 37 wherein the header information is part of a JPEG 2000 file  
[Per APA1]

- Claim 44. the method defined in Claim 37 wherein one of the one or more operations comprises classification  
[Per the analysis of claim 2]

***Allowable Subject Matter***

14. Claims 92-106 are allowed.

15. The following is a statement of reasons for the indication of allowable subject matter:

16. Regarding independent claim 92, and similarly claims 97 and 102, closest art of record *International Standard ISO/IEC 15444-1 (First edition, Dec. 15, 2000)* on JPEG 2000 core coding system discloses a method for determining bit allocation (a kind of entropy distribution) given a bit rate [Sect. J.14.3, pp. 215-216] and Florencio (US 6,775,325) discloses a method for changing bit rate without completely decompressing the corresponding bit stream (by partially decompressing to obtain the transform coefficients and then re-quantizing the coefficients to achieve the desire new bit rate—see the abstract and Figs. 4-6). However, neither discloses nor teaches/suggests estimating a new entropy distribution corresponding to a lower bit rate from that of a higher bit rate.

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***Conclusion and Contact Information***

17. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yubin Hung whose telephone number is (571) 272-7451. The examiner can normally be reached on 7:30 - 4:00.

18. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Yubin Hung  
Patent Examiner  
Art Unit 2624  
August 10, 2006

JINGGEWU  
PRIMARY EXAMINER

